

Abstract

An acetylene generation and supply system includes an acetylene generation device configured to generate acetylene from at least one reactant feed stream including at least one carbon containing material, and an acetylene processing device oriented in-line and downstream from the acetylene generation device to receive and process generated acetylene from the acetylene generation device. The acetylene processing device consumes at least a portion of the generated acetylene upon operation of the acetylene processing device. In one embodiment, the acetylene generation device is an arc plasma reactor, and the acetylene processing device is a carburization system that processes steel parts.